# Sony to ship new 1.2kWh energy storage modules

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Starting in the end of April 2011, Sony will begin volume shipments of energy storage modules that use rechargeable lithium-ion batteries made with olivine-type lithium-ion iron phosphate as the cathode material (hereafter referred to as 'olivine-type lithium-ion iron phosphate cell'). These energy storage modules have a lifespan of over 10 years, excellent safety performance, rapid recharging capabilities and high scalability. Sample shipments of the new module began in June last year and Sony decided to begin volume shipments after rigorous testing and experimentation with various applications.

This energy storage module has 1.2kWh capacity and multiple modules can be connected either in series or in parallel to easily expand the voltage or capacity. When used in conjunction with a control device, the module can be as a backup power supply for data servers or cell phone reception towers. Alternatively it can be an energy storage system for residential use. In addition, the module can be incorporated into

recharging stations for electric vehicles as the technology for the built-in rechargeable olivine-type lithium-ion iron phosphate cells facilitates rapid recharging and high power output. The modules will be sold primarily to system integrators incorporating power supply systems for cluster housing, offices, schools and installers of industrial power supply equipment.

Sony is positioning the energy storage business, for which demand is increasing, as a new cornerstone for its rechargeable lithium-ion battery business, and is aiming for sales of 30,000 units of its 1.2kWh energy storage module in the first year.

In recent years, there has been increasing demand in the energy storage system market for rechargeable lithium-ion batteries, which boast superior energy efficiency, higher power density and excellent storage characteristics, as substitutes for commonly-used batteries made from lead or nickel-cadmium (Ni-Cad). More efficient energy storage systems were developed as part of environmental measures to reduce $CO_2$ emissions, but these modules are also garnering attention for their usefulness as emergency power sources in times of disaster or as load-leveling measures during peak electricity periods.

Sony will begin volume shipments of its rechargeable olivine-type lithium-ion iron phosphate cell energy modules, which are characterized by their long lifespan of over 10 years, their advanced performance safety , rapid recharging capabilities, and high scalability. The highly scalable modules enable voltage and capacity to be customized to suit various applications, while the compact body design ensures compatibility with a wide range of uses.

## Main features of the energy storage module

1.‘Long lifespan’

These modules can be used for over 10 years*1. The ability to reuse them repeatedly for such a long period of time also helps to reduce environmental impact.

2. 'High performance safety'
In addition to the use of rechargeable olivine-type lithium-ion iron phosphate cells, which boast excellent thermal stability and storage characteristics, the storage module also contains a built-in self-monitoring function to detect any abnormalities within the module itself.

3.'Rapid recharging performance'
The battery can be recharged to 90% capacity or more in just one hour.

4. 'High scalability'
Multiple modules can easily be connected either in series or in parallel, enabling both the voltage and capacity to be customized to suit various applications.

## Details of main features of the energy storage module:

1.Consumers can anticipate that rechargeable olivine-type lithium-ion iron phosphate batteries will have a long useful life of over 10 years when charged/discharged once daily at room temperature (23°C) , thanks to their inherently superior properties. Furthermore, Sony has achieved a long-lasting charge/discharge cycle that does not depend on the depth of the discharge. Discharge depth: The ratio of discharged electricity in proportion to a cell's rating capacity. A factor that influences the useful life of many rechargeable batteries.

2. In comparison to lead-acid batteries and nickel cadmium (Ni-Cad) batteries, lithium-ion batteries have lower energy loss when discharging

the stored electrical energy (= high 'charge/discharge efficiency'). Additionally, they are not affected by the phenomenon known as 'memory effect' that is often seen in Ni-Cad batteries, thus further demonstrating energy-saving benefits. Memory effect: This phenomenon occurs when a battery is repeatedly recharged without having first been fully discharged, causing its usable capacity to be reduced and shortening the actual time that a battery can be used.

3. The energy storage module has a built-in self-monitoring function for detecting any internal abnormalities.

4. The energy storage module's internal battery usage can be controlled safely by monitoring the state (voltage, current, temperature) of the internal batteries and communicating the outcome to a linked external battery management system.

5.The high power output construction of rechargeable olivine-type lithium-ion iron phosphate batteries facilitates a charge of 90% or more in just one hour. Variables such as the voltage and capacity can be customized for different applications by connecting multiple modules either in series or in parallel. Each module is compatible with a high power output of up to a maximum 2.5kW. Furthermore, at 19 inches (2U), the module size is also suitable for fitting to standard computer server racks.

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7. Iron (lithium iron phosphate) is used as the electrode material, thus enabling reduced environmental impact in comparison to rechargeable

lithium-ion batteries that instead use rare metals with extremely limited reserves, and which are therefore in low supply.

8. No regular maintenance required such as rehydration, which is needed for some lead acid batteries.

**More information:** Energy storage module specifications

Capacity: 1.2kWh
Nominal voltage: 51.2V
Maximum output: 2.5kW
Standard recharging conditions: 2.5 hours at 57.6V / 24A
Dimensions: 432×421×80mm (excluding attachment fixtures and fittings)
Weight: approximately 17kg

Source: Sony